

REMARKS

Claims 1-12 are pending. Claim 4 is cancelled. Each of the rejections is addressed below.

Support for the Amendments

Support for the amendment is found in the specification and claims as originally filed. For example, support for the amendment of claims 1 and 2, which now recite “hop beta acids” is found at page 4, second full paragraph; support for the amendment of claims 1 and 2, which now recite “emulsifier” is found at claim 4 as originally filed.

Rejections under 35 U.S.C. § 112, first paragraph

Written Description

The Examiner continues to reject claims 1-3 and 5-12, which are directed to methods for controlling spider mites and powdery mildew in an agricultural crop, the method comprising: applying an emulsion comprising an emulsifier, soap and at least 1.0% hop beta acids to the crop, wherein soap is present in an amount sufficient to reduce film in the emulsion, as allegedly lacking an adequate written description. In support of the written description rejection, the Examiner asserts that Applicants have failed to explain what constitutes liquid soap, have failed to explain what constitutes an emulsifier, and have failed to provide a sufficient number of examples of emulsifiers. Applicants respectfully disagree and traverse the rejection.

An adequate written description of the invention may be shown by any description of sufficient, relevant, identifying characteristics so long as a person skilled in the art would recognize that the invention had possession of the claimed invention (M.P.E.P. 2163.04 II.A.3(a)). However, the Court states that “reduction to practice ordinarily provides the best evidence that an invention is complete.” *Pfaff v. Wells Electronics, Inc.*, 525 U.S. 55, 68, 119 S. Ct. 304, 312, 48 USPQ2d 1641, 1647 (1998). Applicants’ specification satisfies the written description requirement with respect to liquid soap because it provides a reduction to practice at page 13, lines 1-4, where Applicants teach that soap was added to an emulsion of hop acids to facilitate application of the emulsion to crops. Prior to the addition of soap, the emulsions clogged the sprayer (page 13, lines 5 and 6). In particular, Applicants “discovered that solubility

and film problems associated with beta acids could be improved considerably by adding liquid soap at 0.5% concentration.” This description of the use of liquid soap to prevent clogging satisfies the written description requirement.

Moreover, contrary to the Examiner’s assertion, the term “liquid soap” does not require any explanation beyond what is present in Applicants’ specification because one of skill in the art would understand what is meant by that term. (M.P.E.P. § 2163 II.A.2) Information which is well known in the art need not be described in detail in the specification (*Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1379-80, 231 USPQ 81, 90 (Fed. Cir. 1986)). Liquid soap is well known in the art as evidenced in the extensive use of that term in issued U.S. patent and published U.S. patent applications. A search of the on-line U.S. Patent and Patent publication databases for the term “liquid soap” identified 1,951 U.S. Patents and 1,022 U.S. Patent Publications. Moreover, liquid soap was described and claimed more than one hundred years ago in a U.S. Patent 49,561, entitled “Improved Liquid Soap,” issued in 1865. In view of this extensive and long-standing usage, the term “liquid soap” is well known and requires no explanation beyond the description provided in Applicants’ specification. Accordingly, this basis for the written description rejection is improper and should be withdrawn.

Applicants’ specification also clearly describes emulsifiers. For example, at page 5, under the heading “Preparation of a 10% Emulsion of Beta Fraction (Beta Acid Oil) for Pest Control,” Applicants describe the preparation of an aqueous emulsion of beta acids “the beta acid fraction was heated to 60° C, and added to a volume of 60°C water, to which an emulsifier, such as Nino FM Tri-Emulsifier, was added . . . The mixture was then emulsified in a high-shear mixer to produce a stable emulsion.” Applicants teach that water can be added to this emulsion, and that the emulsion remained stable at all dilutions. In view of this reduction to practice, Applicants’ specification provides a description of an emulsifier that satisfies the written description requirement, and no further description of emulsifiers is necessary.

Furthermore, the meaning of the term “emulsifier” is well known to one of skill in the art as evidenced by the extensive use of the term in U.S. Patents and Published Patent Applications. A search of the on-line U.S. Patent and Patent publication databases for the term “emulsifier” identified 36,071 U.S. Patents and 17,192 U.S. Patent Publications. The use of the term emulsifier was described eighty-eight years ago in U.S. Patent No. 1,352,351, entitled

“Emulsifier,” issued March 11, 1920. Given the extensive and long-standing use of the term “emulsifier,” no explanation of the term is required because one of skill in the art would readily understand what is meant by the term. Thus, this basis for the written description rejection is also improper and should be withdrawn.

Rejections under 35 U.S.C. § 103

Claims 1 and 2, which are directed to methods of controlling spider mites or powdery mildew by applying an emulsion to an agricultural crop, are rejected under 35 U.S.C. 103(a) as allegedly obvious over Jones et al. (Pestic. Sci. 47:165-169, 1996; hereinafter “Jones”) and Nutter (U.S. Patent No. 5,827,895; hereinafter “Nutter”) in view of Souter et al., (U.S. Patent Publication No. 2003/0060379; hereinafter “Souter”), and Locke. Applicants respectfully disagree and traverse the rejection.

Applicants specification teaches that emulsions of hop acids are useful to safely and effectively control spider mites and powdery mildew on agricultural crops (page 3, fourth paragraph; page 10, page 13). The application of the hop acid emulsion was hindered by the constant clogging of the sprayers used to apply large volumes of hop acids to agricultural crops out in the field (page 4, first full paragraph, and page 13, first full paragraph). Applicants were the first to recognize this problem, and were the first to solve it by adding soap to the emulsion (page 4, second paragraph). None of the cited prior art references is directed to the application of emulsions of hop acids to agricultural crops. None of the cited prior art references recognized that sprayers would clog during application of a hop acid emulsion to agricultural crops, and in the absence of this recognition, none of the cited prior art references addresses the problem that Applicants’ claimed invention solves.

Jones

In the Office action mailed July 27, 2007, page 3, third paragraph, the Examiner states that Jones shows that beta acids are antifungal and acaricidal. Applicants respectfully disagree. Jones states that “Synthetic 2-acylcyclohexane-1,3-diones have been prepared that are antibiotic, fungicidal or acaricidal.” The Examiner acknowledges that Jones fails to describe soap, nor are

emulsions mentioned or contemplated. To remedy the deficiencies of Jones, the Examiner cites Nutter.

Nutter

Like Jones, Nutter fails to describe the use of soap in a beta acid emulsion, as Applicants do. Nutter describes the use of beta acids as therapeutics (column 2, lines 42-43 and column 4, lines 3-34) and pharmaceutical compositions comprising beta acids that are suitable for oral administration (column 5, lines 65 and 66). Specifically, Nutter describes “Pharmaceutical compositions suitable for oral administration may be presented as discrete unit dosage forms such as hard or soft gelatin capsules . . . as a solution, a suspension or as an emulsion.” The Examiner appears to be relying on Nutter for the description of beta acid emulsions. This reliance is misplaced because Nutter is not from an analogous art.

To support a rejection under 35 U.S.C. § 103(a), a reference must be from an analogous art (M.P.E.P. 2141.01(a)). To determine whether a reference is from an analogous art, a two-fold analysis is required:

First, we decide if the reference is within the field of the inventor's endeavor. If it is not, we proceed to determine whether the reference is reasonably pertinent to the particular problem with which the inventor was involved. *In re Wood*, 599 F.2d 1032, 1036 (C.C.P.A. 1979)

The Wood court first considers whether the reference is within the inventor's field and then considers whether the reference is pertinent to the problem the inventor is trying to solve.

Nutter is not within the field of Applicant's invention. Nutter relates to the therapeutic use of hop acids in pharmaceutical compositions. In contrast, Applicant's invention relates to the agricultural use of hop acids to control spider mites and powdery mildew in crops. The use of hop acids as pharmaceuticals is distinct and distinguishable from the field of agricultural pesticides. Thus, Nutter fails the first prong of the test set forth by the court in *Wood*.

Nutter is also not reasonably pertinent to the problem that Applicants were involved in solving. Applicants were interested in preventing hop beta acid emulsions from clogging crop

sprayers when the emulsions were applied. Applicants state that “emulsions tend to clog sprayers (page 13, first full paragraph).” Surprisingly, Applicants discovered that including soap in the hop beta acid emulsion solved the clogging problem (page 13, second paragraph) and did not detrimentally affect the emulsion function. Applicants state “In subsequent field tests, it was discovered that solubility and film problems associated with beta acids could be improved considerably by adding liquid soap at 0.5% concentration (page 13, second paragraph).” The emulsions described by Nutter are present in pharmaceutical compositions for oral administration, and are not pertinent to the clogging film problems confronted by Applicants during the application of their emulsions to crops. Thus, Nutter fails the second prong of the test established by the court in *In re Wood*.

In sum, because Nutter is outside of the field of agricultural pesticides and is not reasonably pertinent to the agricultural application problem Applicants were involved in solving, Nutter is clearly nonanalogous art, and therefore cannot be used to support the obviousness rejection (M.P.E.P. 2141.01(a)). Accordingly, the rejection of the claims over Nutter should be withdrawn.

Locke

Locke describes insecticidal compositions comprising neem oil and soap. Locke states that neem oil “can be applied as a soap . . . to repel insects and protect skin or wool from insect and fungal attack (column 4, line 67, to column 5, line 2).” Locke fails to mention hop beta acids, and fails to provide any motivation to replace neem oil with hop acids. Therefore, Locke fails to teach or suggest applying an emulsion comprising 1.0% hop beta acids and soap to crops, where the soap is present in an amount sufficient to reduce film formation.

To establish a *prima facie* case of obviousness, the Examiner must first show that there is a suggestion or motivation to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference must teach or suggest all the claim limitations. M.P.E.P. 2143. In the absence of a showing that the references expressly or impliedly suggest all of the claim limitations the rejection under § 103 is improper and must be withdrawn. M.P.E.P. 2142.

One would not be motivated to combine Jones or Nutter with Locke, and moreover would not be motivated to combine the neem oil soap described by Locke as useful in repelling insects from skin and wool with the solutions described by Jones or the pharmaceutical compositions of Nutter to arrive at Applicants' claimed method of applying an emulsion comprising hop beta acids and soap in an amount sufficient to reduce film formation.

Souter

In the Advisory action the Examiner states that "The 103 rejection is maintained, because the Souoter (sic) reference predates applicant's CIP; there is no liquid soap in the earliest of applicant's applications, nor is there any showing of efficacy to control powdery mildew." Applicants disagree and traverse. Nevertheless, Souter fails to remedy the deficiencies of Jones, Nutter and Locke because Souter fails to teach that it would be desirable to add soap to an emulsion of hop acids. In fact, Souter teaches away from such use. It is improper to combine references where the references teach away from the combination. *In re Grasselli* 713 F.2d 731, 743; 218 USPQ 769, 779 (Fed. Cir. 1983).

Souter describes "a liquid pesticide comprising soap and fragrance (column 1, paragraph 0010, lines 2 and 3)." Souter teaches that such pesticides should not be applied as emulsions, but should be applied in solubilized form. Specifically, Souter states, "The outstanding performance of the present pesticide is believed to be due in part to the fact that the fragrance is in solubilised rather than emulsified form (page 2, left column, lines 4-6)." Not only does Souter teach that pesticides are most effective when formulated as a solution, Souter teaches that the formation of an emulsion should be avoided, stating "The soap and fragrance concentrations are preferably such as to avoid the formation of an emulsion, i.e., one separable by centrifugation or ultracentrifugation (page 2, paragraph 0014, lines 6-8)." In view of this teaching away, Souter is not a proper reference for support of a rejection of the claimed subject matter, and one of skill in the art would lack the requisite motivation or expectation of success to add soap to the claimed hop acid emulsions.

Furthermore, Applicants respectfully disagree with the assertion that the "combination of [hop] acids and soaps would be evident (Advisory Action, mailed February 20, 2008, lines 7 and

8)." There is no clear articulation of evidence in support of this assertion; it is merely conclusory.

The key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. The Court quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006), stated that

Rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. M.P.E.P. § 2141.III.

Rather than provide rational underpinnings in support of the obviousness rejection, the Examiner merely asserts that under KSR, "common sense & general knowledge prevail." This is not the standard established by the court in KSR, however. To the contrary, the Court stated that

Although common sense directs one to look with care at a patent application that claims as innovation the combination of two known devices according to their common functions, it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed invention does. *KSR Int'l Co. v. Teleflex Inc. et al.* 550 U.S. ____ (2007), pp. 14, last paragraph, to page 15.

In the absence of evidence or reasoning showing why the skilled artisan could have predictably combined the elements in the way that Applicants' claimed invention does, the rejection is improper and should be withdrawn.

In sum, the cited references fail to teach or suggest all of the claim limitations. In addition, the skilled artisan would lack the motivation to combine these references. None of the cited references, alone or in any combination is sufficient to support the rejection of the claims under 35 U.S.C. § 103. Thus, withdrawal of the rejection is respectfully requested.

Double-patenting rejection

Claims 1 and 2 are rejected under the judicially created doctrine of double patenting over claims 3, 10, 14, 15, 17, and 18 of copending Application No. 11/008,781. Applicants respectfully traverse the rejection. Applicants request withdrawal of the provisional

obviousness-type double patenting rejection upon a finding that the claims are in condition for allowance.

CONCLUSION

In view of the above amendment, Applicants believe the pending application is in condition for allowance. If a telephone conversation with Applicants' agent would help expedite the prosecution of the above-identified application, the Examiner is urged to call the undersigned agent at (617) 517-5580.

No fee is believed due for consideration of this response, however, the Director is hereby authorized to charge any credits or deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1105.

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Respectfully submitted,

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